

CLAIMS:

1. Mixer-system for converting a frequency of an input signal into a different frequency of an output signal by mixing said input signal with a further input signal, wherein said mixer-system comprises at least three sub-inputs for receiving a first group of sub-signals and comprises at least three further sub-inputs for receiving a second group of sub-signals and comprises at least three sub-outputs for generating a third group of sub-signals, with at least said third group of sub-signals comprising three sub-signals with a first phase difference being present between a second sub-signal and a first sub-signal and with a second phase difference being present between a third sub-signal and said second sub-signal, which first phase difference and which second phase difference are each within an interval of 100-140 degrees.
2. Mixer-system according to claim 1, wherein for each group of sub-signals said first phase difference and said second phase difference are each within said interval.
3. Mixer-system according to claim 2, wherein said first phase difference and said second phase difference are each within an interval of 118-122 degrees.
4. Mixer-system according to claim 2, wherein said mixer-system comprises a group of transistors per sub-input.
5. Mixer-system according to claim 4, wherein said mixer-system comprises a further transistor per further sub-input each for switching one of said groups of transistors, with control electrodes of said transistors per group being coupled to said sub-inputs and with control electrodes of said further transistors each being coupled to one of said further sub-inputs, with first main electrodes of said further transistors being coupled to each other and with second main electrodes of said further transistors each being coupled to all first main electrodes of one of said groups of transistors, and with a second main electrode of each transistor of one group of transistors being coupled to second main electrodes of one transistor of each other group of transistors and to a sub-output.

6. Mixer-system according to claim 5, wherein at least said transistors in each group of transistors are bipolar transistors.

5 7. Mixer-system according to claim 4, wherein a control electrode of each transistor of one group of transistors is coupled to control electrodes of one transistor of each other group of transistors and to a further sub-input, with first main electrodes of each group of transistors being coupled to each other and to a sub-input, and with a second main electrode of each transistor of one group of transistors being coupled to second main
10 electrodes of one transistor of each other group of transistors and to a sub-output.

8. Apparatus comprising a mixer-system for converting a frequency of an input signal into a different frequency of an output signal by mixing said input signal with a further input signal, wherein said mixer-system comprises at least three sub-inputs for receiving a
15 first group of sub-signals and comprises at least three further sub-inputs for receiving a second group of sub-signals and comprises at least three sub-outputs for generating a third group of sub-signals, with at least said third group of sub-signals comprising three sub-signals with a first phase difference being present between a second sub-signal and a first sub-signal and with a second phase difference being present between a third sub-signal and
20 said second sub-signal, which first phase difference and which second phase difference are each within an interval of 100-140 degrees, with said apparatus comprising at least one poly-phase filter coupled to said sub-outputs for combining said third group of sub-signals into said output signal.

25 9. Apparatus according to claim 8, wherein said apparatus comprises at least one further poly-phase filter coupled to said sub-inputs for splitting said input signal into said first group of sub-signals and comprises either at least one yet further poly-phase filter coupled to said further sub-inputs for splitting said further input signal into said second group of sub-signals or at least one ring oscillator for generating said second group of sub-signals together
30 forming said further input signal.

10. Method for converting a frequency of an input signal into a different frequency of an output signal by mixing said input signal with a further input signal, wherein said method comprises the steps of receiving a first group of sub-signals and of receiving a

second group of sub-signals and of generating a third group of sub-signals, with at least said third group of sub-signals comprising three sub-signals with a first phase difference being present between a second sub-signal and a first sub-signal and with a second phase difference being present between a third sub-signal and said second sub-signal, which first phase
5 difference and which second phase difference are each within an interval of 100-140 degrees.